CLAIMS

What is claimed is:

1. A method for allocation of resources for a FPGA-based SoC, the method comprising:

selecting a first system component for customizing the FPGA-based SoC;

determining available resources for the FPGA-based SoC subsequent to said selection of said first system component; and

choosing a second system component to utilize said available resources to facilitate allocation of FPGA-based SoC resources.

2. The method according to claim 1, wherein said determining step further comprises determining total FPGA-based SoC resources.

3. The method according to claim 2, wherein said step of determining available resources further comprises computing a difference between said total FPGA-based SoC resources and resources utilized by said selected system component, to yield said determined available resources for the FPGA-based SoC.

4. The method according to claim 3, further comprising the step of choosing a third system component that utilizes no more than said available resources when said second system component utilizes more resources that said determined available resources, said third system component being an alternative to said second system component.

5. The method according to claim 4, wherein said step of choosing said third system component further comprises computing total resources utilized by said first system component and said third system component.

6. The method according to claim 5, wherein said step of choosing said third system component further comprises computing a difference between said determined available resources for the FPGA-based SoC and said computed total resources utilized by said first system component and said third system component.

7. The method according to claim 1, further comprises displaying each of said determined available resources for the FPGA-based SoC, and each resource utilized by said first and said second system component.

8. The method according to claim 1, wherein said selecting step further comprises selecting a system component from a group consisting of hardware cores, software cores, hardware core parameters and software core parameters, buses, fixed-function FPGA resources, and user-specified design components.

9. A method for allocation of resources for a FPGA-based SoC, the method comprising:

selecting system components for customizing the FPGA-based SoC;

computing resource usage for said selected system components; and

distributing the FPGA-based SoC system resources among said selected system components according to said computed resource usage to customize said FPGA-based SoC.

10. The method according to claim 9, wherein said step of computing said resource usage further comprises determining resources to be used by at least one selected system component and determining FPGA-based SoC resources available for use by at least an unselected system component.

11. The method according to claim 10, further comprising:

if said selected system component requires more FPGA-based SoC resources than said available FPGA-based SoC resources, providing an unavailable resource notification.

12. The method according to claim 11, further comprising the step of determining at least one alternative system component requiring less resources than said available FPGA-based SoC resources.

13. The method according to claim 12, wherein said determining step further comprises selecting said determined at least one alternative system component to customize the FPGA-based SoC.

14. The method according to claim 9, wherein said computing step further comprises determining incompatibility between said selected system components.

15. The method according to claim 14, wherein said determining step further comprises determining at least one alternative compatible system component for replacing an incompatible system component.

16. The method according to claim 9, wherein said selecting step further comprises selecting a system component from a group consisting of hardware cores, software cores, hardware core parameters and software core parameters, buses, fixed-function FPGA resources, and user-specified design components.

17. The method according to claim 16, further comprising the step of selecting a default parameter for said selected system component.

18. The method according to claim 17, wherein said step of selecting said default parameter for said selected system

component further comprises the step of propagating said default parameter throughout said customization of the FPGA-based SoC.

19. A machine readable storage having stored thereon, a computer program having a plurality of code sections, said code sections executable by a machine for causing the machine to perform the steps of:

selecting a first system component for allocating resources while customizing a FPGA-based SoC;

determining available resources for said FPGA-based SoC subsequent to said selection of said first system component; and

choosing a second system component to utilize said available resources to facilitate allocation of FPGA-based SoC resources.

20. The machine readable storage according to claim 19, wherein said determining step further comprises determining total FPGA-based SoC resources.

21. The machine readable storage according to claim 20, wherein said step of determining available resources further comprises computing a difference between said total FPGA-based SoC resources and resources utilized by said selected system component, to yield said determined available resources for the FPGA-based SoC.

22. A machine readable storage having stored thereon, a computer program having a plurality of code sections, said code sections executable by a machine for causing the machine to perform the steps of:

selecting system components for allocating resources for customizing a FPGA-based SoC;

computing resource usage for said selected system components; and

distributing the FPGA-based SoC system resources among said selected system components according to said computed resource usage to customize said FPGA-based SoC.

23. The machine readable storage according to claim 22, wherein said step of computing said resource usage further comprises determining resources to be used by at least one selected system component and determining FPGA-based SoC resources available for use by an unselected system component.

24. The machine readable storage according to claim 23, further comprising, if said selected system component requires more FPGA-based SoC resources than said available FPGA-based SoC resources, providing an unavailable resource notification.

25. The machine readable storage according to claim 22, wherein said computing step further comprises determining incompatibility between said selected system components.

26. The machine readable storage according to claim 25, wherein said determining step further comprising determining at least one alternative compatible system component for replacing an incompatible system component.

27. The machine readable storage according to claim 22, wherein said selecting step further comprises selecting a system component from a group consisting of hardware cores, software cores, hardware core parameters and a software core parameters, buses, fixed-function FPGA resources, and user-specified design components.

28. A GUI for allocating resources in a FPGA-based SoC, the GUI comprising:

a selection object for selecting at least a system

component from a plurality of system components, said system components utilized for customizing the FPGA-based SoC;

a display window for displaying said selected system components; and

a parameter selection object for defining parameters for configuring said system components capable of being displayed in said display window.

29. The GUI according to claim 28, further comprising a resource display object for displaying at least one resource selected from the group consisting of resources for the FPGA-based SoC, resources utilized by each selected said system component and resources available for use in the FPGA-based SoC.

30. The GUI according to claim 29, wherein said resource display object is configured to update said at least one resource whenever said selection object selects a system component.

31. The GUI according to claim 29, wherein said resource display object is configured to update said displayed at least one resource whenever said parameter selection object defines a parameter for configuring a particular system component.

32. The GUI according to claim 28, wherein said selection object further comprises an alternative selection dialog, said alternative selection dialog for presenting at least one system component that is an alternative to a selected system component.

33. The GUI according to claim 28, wherein the FPGA-based SoC is an FPGA-based embedded processor SoC.